

1 METHOD AND SYSTEM FOR PROVIDING INFORMATION RECORDING
2 SERVICE, AND RECORDING MEDIUM AND COMPUTER PROGRAM PRODUCT
3 THEREFOR

4 FIELD OF THE INVENTION

5 The present invention relates to a method and system for
6 providing an information recording service, such as the
7 printing of electronic data on paper. In particular, the
8 present invention pertains to an effective technique applied
9 for out-sourcing data recording operations, such as the
10 printing of data, across the Internet.

11 BACKGROUND

12 Vendors of products must universally furnish clients
13 reference materials, such as catalogues, pamphlets and
14 manuals. Traditionally, such materials have been provided
15 as printed paper media. However, in line with recent
16 improvements in information processing methods and the
17 development and widespread employment of Internet
18 distribution techniques, services have appeared whereby the
19 Internet is employed for the transmission and the reading of
20 reference materials in an electronic data form. When a
21 material scanning system is employed, a savings in paper
22 resources can be realized and printing and transportation
23 costs reduced, making it possible for a client to read
24 reference material, as needed, while enjoying a reduced
25 product cost engendered by reductions in the costs of

1 producing and distributing reference materials. Further,
2 should a client desire a hard copy of the reference
3 material, he or she can simply download the material as
4 electronic data and use a printer to record the data on
5 paper.

6 However, a manual for a high-level product, such as a
7 computer system, is so voluminous that a user would have to
8 assume an excessively large work load in order to download
9 the included data and output it to a printer. And under
10 certain circumstances, the amount of data involved could
11 even exceed the processing capability of a printer. Note
12 that when a product is an electronic book, a user tends to
13 desire that the data be provided as printed material.

14 Since the need for data to be printed on paper exists even
15 when electronic data materials and books are available, a
16 vendor must arrange for a service for providing printed
17 matter. When a vendor personally assumes the responsibility
18 of providing printed matter, that vendor must not only
19 arrange for the printing of reference materials but also for
20 their delivery. Thus, since for jobbers other than
21 specialty jobbers, these arrangements increase handling
22 costs, generally, jobbers contract out the printing and
23 distribution of reference material to special printing
24 jobbers.

25 Problems to be Solved by the Invention

26 As is described above, when the printing of manuals of

1 electronic data is entrusted to special printing jobbers,
2 the operation can be simplified, and to a degree, reductions
3 in costs can be realized. However, under these
4 circumstances a vendor is still responsible for the
5 acceptance of printed material requests from clients, and
6 for notifying a printing jobber of the contents of a
7 client's application and transmitting the latest relevant
8 data to the printing jobber. Therefore, when implementing a
9 service operation and responding to the request of a client
10 for printed material, only limited cost reductions that can
11 be realized.

12 Furthermore, since it is common for the forms required for
13 jobs entrusted to printing jobbers to differ, depending on
14 the printing targets or the vendors, printing jobbers must
15 cope with the printing of a great variety of forms. Since
16 the complexity this involves impedes attempts by printing
17 jobbers to improve their performances, they are prevented
18 from realizing cost reductions through the rationalization
19 of their operations.

20 SUMMARY OF THE INVENTION

21 It is therefore one aspect of the present invention to
22 provide a service provision method and system for providing
23 a recording service, such as the efficient printing of
24 electronic data that has been scanned or distributed.

25 It is another aspect of the present invention to provide an

1 information recording service, such as data printing, that
2 imposes only an extremely small load on a vendor.

3 It is an additional aspect of the present invention to
4 provide a standardized service provision method for a
5 service provider, such as a printing jobber, for providing
6 an information recording service.

7 BRIEF DESCRIPTION OF THE DRAWINGS

8 The foregoing and further aspects and advantages of this
9 invention will become more apparent from a consideration of
10 the following description, the appended claims, and the
11 accompanying drawings, in which:

12 Fig. 1 is an example diagram showing an overview of a
13 printing service provision system according to one
14 embodiment of the present invention;

15 Fig. 2 is an example block diagram showing the
16 configurations of a printing provider computer, a vendor
17 computer and a client computer;

18 Fig. 3 is an example flowchart showing an example
19 information recording service provision method according to
20 the embodiment;

21 Fig. 4 is an example diagram showing an example display for

1 a product search screen;

2 Fig. 5 is an example diagram showing an example product
3 introduction screen display for search results;

4 Fig. 6 is an example diagram showing an example display for
5 an application input screen; and

6 Fig. 7 is an example diagram showing an example display for
7 an application completed screen.

8 DESCRIPTION OF THE SYMBOLS

- 9 1: Internet
- 10 2: Printing provider computer
- 11 2a: Web server
- 12 2b: Application relay function
- 13 2c: Application acceptance function
- 14 2d: Print file acquisition function
- 15 3: Printer
- 16 4: Vendor computer
- 17 4a: Web server
- 18 5: Print file
- 19 6: Client computer
- 20 6a: Web client
- 21 7a: Product search screen
- 22 7b: Product introduction screen
- 23 7c: Application input screen
- 24 7d: Application complete screen
- 25 30: Input field

1 31: Search button
2 32: Printing service request button
3 33, 34: Input fields
4 35: Printing service request button

5 DESCRIPTION OF THE INVENTION

6 An overview of the invention is as follows. In an
7 information recording service provision system for this
8 invention, the computer of a service provider who provides a
9 service for recording documents, drawings and other
10 information, the computer of a data provider who provides
11 target data for the information, and the computer of a
12 client who uses the service to record the information are
13 interconnected by a network. In response to a request
14 forwarded by the client computer to the data provider
15 computer, display data, including anchor information used
16 for establishing a link with the service provider computer,
17 is transmitted to the client computer. Then, an image
18 corresponding to the display data is displayed on the screen
19 of the client computer, and from the display data, text or
20 an image, correlated with the anchor information, is
21 selected. In response to this selection, the service
22 provider computer that is linked to the client computer
23 initiates the processing, and transmits, to the client
24 computer, data for an information recording request screen.
25 When the information recording request screen has been
26 displayed, client information and other information is
27 entered, and is transmitted to the service provider

1 computer. The service provider computer obtains and records
2 the target data, and transmits the recorded material to the
3 client in accordance with the client information.

4 According to the present invention, tag information that is
5 linked to the service provider (e.g., a printing jobber)
6 need only be inserted into the web page of a data provider
7 (a vendor), so that a recording service, such as one for the
8 printing of electronic data, can be provided for the client,
9 while an extremely small load is imposed on the data
10 provider. That is, since the recorded material for
11 electronic data, such as the printed material, is collected
12 by the service provider from the recording request screen
13 that it has issued, the data provider need not manage the
14 recording request (printing request) submitted by the
15 client. Further, since data to be recorded, such as data to
16 be printed, is obtained by the service provider when the
17 request application is accepted, so long as the recording
18 location of the target is identified, the data provider need
19 only update the data recorded at this location. Therefore,
20 the data provider must merely update the target data
21 recorded at a predetermined address and can always provide
22 updated data to the client, without having to perform an
23 operation to provide the service provider the latest data.

24 Whereas, only when requesting anchor tag information to be
25 inserted into the web page of a vender, a service provider,
26 such as a printing jobber, can standardize an application
27 form used to request that a client submit a printing
28 application to his or her own server (service provider).

1 Therefore, the operation concerning the submission of a
2 printing request can be simplified, and efficiency of the
3 operation efficiency improved. Further, for the printing
4 service, a POD (Print On Demand) printer is employed for the
5 printing process (information recording process), so that
6 the entire process, from the acquisition of print data to
7 the actual printing, can be automated.

8 In order to search for information and to submit a printing
9 or recording request application accompanied by the search
10 results, a client need only select buttons while reading the
11 web page, and does not need to know which server is handling
12 the process. That is, for a recording or a printing request
13 process, the client need only move the web page in
14 accordance with the links by which the buttons are
15 connected, and enter necessary information as requested.
16 Thus, for a client, a convenient information recording
17 request system can be provided.

18 The anchor information can include address information for a
19 linking destination, the title of the target data, the
20 recording location and other attribute information.
21 Further, attribute information or a session management ID
22 can be included as a hidden tag in the information recording
23 request screen data, and can be transmitted with the client
24 information that is input. Furthermore, the attribute
25 information can be correlated with the session management
26 ID, and the target data can be obtained by referring to the
27 recording location of the target data, which is included in
28 the attribute information transmitted with the client

1 information, or the attribute information correlated with
2 the session management ID.

3 Advantageous Embodiments

4 An example of an advantageous embodiment of the present
5 invention will now be described in detail. It should be
6 noted, however, that the present invention can be carried
7 out by various other embodiments, and is not limited to this
8 embodiment. The same reference numerals are used through
9 the embodiment to denote corresponding or identical
10 components.

11 In this embodiment, mainly the method or the system will be
12 described. However, as will be obvious to one having
13 ordinary skill in the art, the present invention can be
14 implemented not only as the method or the system, but also
15 as a recording medium on which computer-readable program
16 code is recorded. Therefore, the present invention can be
17 provided as hardware or software, or as a combination of the
18 two. An example recording medium on which program code is
19 recorded can be an arbitrary computer-readable recording
20 medium, such as a hard disk, a CD-ROM, an optical storage
21 device, or a magnetic storage device.

22 The computer system used for this embodiment comprises a
23 central processing unit (CPU), a main memory (RAM (Random
24 Access Memory)) and a nonvolatile storage device (ROM (Read
25 Only Memory)), which are interconnected by a bus. In
26 addition, a co-processor, an image accelerator, a cache

1 memory and an input/output controller (I/O) are connected to
2 the bus. Further, an external storage device, a data input
3 device, a display device or a communication controller may
4 also be connected to the bus. Other hardware resources with
5 which a computer system is ordinarily equipped can also be
6 provided. An example storage device can be a hard disk
7 drive, and a magneto-optical storage device, an optical
8 storage device or a semiconductor storage device, such as a
9 flash memory, can also be included as an external storage
10 device. A read-only storage device, such as a CD-ROM, which
11 is used only for reading data, can also be included as an
12 external storage device when that device is used only for
13 reading data or a program. An input device, such as a
14 keyboard, and a pointing device, such as a mouse, can also
15 be provided as data input devices, as can a voice input
16 device. An example display device is a CRT, a liquid
17 crystal display device or a plasma display device. The
18 computer systems used in this embodiment include arbitrary
19 types of computers, such as personal computers, workstations
20 or main frame computers.

21 The computer system of this embodiment can be used as a
22 single computer system; however, it can also be used as a
23 network comprising multiple computer systems. In this case,
24 the Internet, a LAN or a WAN can be employed for
25 communication among the computer systems. The communication
26 line used for this connection can be either a private line
27 or a public network line.

28 To carry out the invention using multiple computer systems,
29 the program used by each computer system may be recorded in

1 another computer system (e.g., a server computer). In other
2 words, one part of the program used by the computer system
3 can be distributed and processed by a remote computer (e.g.,
4 another server computer or a client computer). When an
5 address is used to refer to a program recorded in another
6 computer system, a DNS, a URL or an IP address can be
7 employed. The data explained in this embodiment may be
8 distributively recorded. Data that is distributively
9 recorded can be accessed by designating a storage location
10 using a DNS, a URL or an IP address.

11 It should be noted that when remarks are made concerning the
12 Internet, these remarks also apply to intranets and
13 extranets. And that references to Internet access also
14 refer to intranet and extranet accesses. Note also that the
15 term "computer network" is used to describe both a network
16 that can be accessed publicly and a network to which only
17 private access is permitted.

18 Fig. 1 is a diagram showing the overview of a printing
19 service provision system according to this embodiment. This
20 service provision system includes the Internet 1, to which a
21 printing provider computer 2, a vender computer 4 and client
22 computers 6 are connected.

23 As is well known to one having ordinary skill in the art,
24 the Internet 1 is a computer network accessible in
25 accordance with the TCP/IP (Transmission Control
26 Protocol/Internet Protocol) or the UDP (User Datagram
27 Protocol) communication protocols.

1 The printing provider computer 2 is the computer system of a
2 printing provider who provides an information recording
3 service in accordance with the embodiment. In this
4 embodiment, printing on paper is used as an example service
5 for the recording of information (electronic data); however,
6 the service is not limited to this, and a service can be
7 provided for recording information (electronic data) on a
8 CD-ROM, for example. A printer 3 is connected to the
9 printing provider computer 2.

10 The vendor computer 4 is a computer system for a vender of
11 products. Normally, documents, such as manuals or
12 pamphlets, accompany the products, and the vendor permits
13 the vendor computer 4 to read in these documents as
14 electronic data. The printing service of this embodiment
15 relates to a service whereby, instead of a vendor, a
16 printing provider prints documents and delivers printed
17 materials to a client. The vendor, however, is responsible
18 for supplying electronic data, the contents of the printed
19 material. And therefore, in this embodiment the vendor is
20 understood to be the provider of the electronic data. The
21 electronic data to be printed is not limited to the data
22 that accompanies products, such as manuals, and may be a
23 product, such as an electronic book, whose electronic data
24 is the target of a sales transaction. Further, the
25 electronic data need not always be related to products, and
26 may be employed for a service whereby a hard copy of the
27 image of a web page or the contents of a web page are
28 obtained. Furthermore, the electronic data is not limited

1 to document, and may be applied, for example, to provide a
 2 service for the downloading of music or of moving picture
 3 data and the recording of the data on a recording medium,
 4 such as a CD-ROM or a DVD-ROM. Electronic data are recorded
 5 in a print file 5, and an example device used for the
 6 recording of the print file 5 is a hard disk drive mounted
 7 in the vendor computer 4. It should be noted that the
 8 recording area for the print file 5 need not be prepared in
 9 the same system as the vendor computer 4. So long as the
 10 recording area of the print file 5 can be designated by
 11 using a URL, the print file 5 may be recorded in the area of
 12 another computer system connected to the Internet 1.

13 The client computer 6 is a computer of a client who uses the
 14 service system of this embodiment. As will be described
 15 later, the client accesses the vendor computer 4 to read the
 16 web page of the vendor, and clicks on a printing request
 17 button when he or she desires to print desired electronic
 18 data. Subsequently, after having entered required data
 19 using a predetermined application screen, the client
 20 receives printed material, the content of which is the
 21 desired electronic data.

22 Multiple computers may be employed as the printing provider
 23 computers 2, the vendor computers 4 and the client computers
 24 6 of the system in this embodiment. Normally, there are
 25 multiple clients and multiple vendors, but there may be only
 26 a single or multiple printing providers. When there are
 27 multiple printing providers, in consideration of the
 28 geographical distance to a client or of communication and

1 delivery costs, a printing provider will be automatically
2 connected for which the aggregate costs are the lowest.

3 Fig. 2 is a block diagram showing an example configuration
4 for the printing provider computer 2, the vendor computer 4
5 and the client computer 6.

6 The printing provider computer 2 includes the functions of a
7 web server 2a, which has an application relay function 2b
8 and an application acceptance function 2c. The printing
9 provider computer 2 also includes a print file acquisition
10 function 2d.

11 A function of the web server 2a, as well as the general
12 server, is the receipt of an HTTP (HyperText Transfer
13 Protocol) request from a client, and the transmission of an
14 HTML (HyperText Markup Language) or an XML (Extensible
15 Markup Language) document in return. Or, the web server 2a
16 can execute a predetermined program via an interface, such
17 as a CGI (Common Gateway Interface), and return the results
18 to the client. The application relay function 2b and the
19 application acceptance function 2c employ the CGI function
20 of the web server 2a.

21 As will be described later, the application relay function
22 2b is the CGI of the destination that is linked to an anchor
23 tag embedded in the web page of the vendor computer 4. The
24 application relay function 2b receives the attribute
25 information as the attribute for a tag, and transmits to the
26 client computer 6 the data entered using the application

1 input screen. The attribute information includes the title
2 of the electronic data to be printed along with its storage
3 location. It should be noted that, as will be described
4 later, the attribute data that is received can be included
5 as a hidden tag for the input tag in the application input
6 screen data.

7 A function of the application acceptance function 2c is the
8 receipt of client information, such as the delivery
9 destination of printed material, that is entered at the
10 client computer 6, and the confirmation of the acceptance of
11 the printing application. The intent of the application is
12 confirmed by the acceptance of this client information, and
13 upon the receipt of the application, printing is initiated
14 by the printing provider.

15 The print file acquisition function 2d obtains a print file
16 5 from the vendor computer 4. This print file 5 is
17 temporarily buffered in the printing provider computer 2.

18 The printer 3 is, for example, a well-known POD printer.
19 When the print file 5 is transmitted to the printer 3 by the
20 printing provider computer 2, the printer 3 begins printing
21 under the control of the printing provider computer 2. It
22 should be noted that there is no limitation placed on the
23 kind of printer 3 that can be employed; it may be a POD
24 printer, or another printer, such as an offset printer.

25 The vendor computer 4 includes a web server 4a, at which the
26 print file 5 is stored. The function of the web server 4a

1 is the same as the function of the web server 2a. As
2 previously described, the print file 5 need not always be
3 recorded in the system of the vendor computer 4.

4 The client computer 6 includes a web client 6a. The web
5 client 6a, which is, for example, a common web browser,
6 includes a function for issuing an HTTP request and for
7 displaying an HTML or XML document. As will be described
8 later, the web client 6a displays a product search screen
9 7a, a product introduction screen 7b, an application input
10 screen 7c and an application complete screen 7d.

11 Fig. 3 is a flowchart showing an example of the information
12 recording service provision method used in this embodiment.
13 In Fig. 3, the process performed by the vendor computer 4 is
14 shown on the left, the process performed by the client
15 computer 6 is shown in the center, and the process performed
16 by the printing provider computer 2 or the printing provider
17 is shown on the right.

18 First, although not shown, the client accesses the vendor
19 computer 4 web page, using a common, well known method, and
20 displays the web page on the client computer 6. Assume that
21 the client displays the product search screen following an
22 arbitrary operation. In the explanation for this
23 embodiment, the printing service is performed after the
24 search is completed. However, no limitation is placed on
25 when the printing service of this invention can be
26 performed. A printing service button can be embedded in any
27 web page, and so long as the button is embedded, the

1 printing service of this invention can be initiated as the
2 result of the performance of any arbitrary process.

3 Fig. 4 is a diagram showing an example image for the product
4 search screen 7a. An adequate keyword is entered in an
5 input field 30, and a search button 31 is selected. In this
6 manner, a search request is issued to the vendor computer 4
7 (step 10). For this selection, the arrow on the screen is
8 moved to the button by using a pointing device, such as a
9 mouse, and the mouse button is clicked. The same process is
10 hereinafter performed for all selections.

11 Upon receipt of the search request, the vendor computer 4
12 conducts a search (step 11), and transmits those search
13 results that match the condition (keyword) to the client
14 computer 6 (step 12). Thereafter, the client computer 6
15 displays the search results (step 13). Fig. 5 is a diagram
16 showing an example product introduction screen 7b. On the
17 product introduction screen 7b, the title or the description
18 of a product and a printing service request button 32 are
19 displayed. The data for the printing service request button
20 32 are originally included in the display data for the
21 product information screen 7b received from the vendor
22 computer 4, and an anchor tag for establishing a link is
23 correlated with the printing service request button 32. An
24 example anchor tag is as follows:

25 <a href="http://printing provider
26 computer.co.jp/cgi-bin/TransOrder.cgi?&title=title&file
27 =http://vendor computer.co.jp/print file.pdf">print
28 service request

1 The address of the printing provider computer 2 that is
2 included as the linking destination (<http://printing>
3 [provider.computer.co.jp/cgi-bin/TransOrder.cgi](http://printing.provider.computer.co.jp/cgi-bin/TransOrder.cgi)), the title
4 of the target data to be printed (title=title), and the file
5 name of the target data indicated by the absolute path
6 (file=<http://vendor.computer.co.jp/print> file.pdf) are
7 included as attributes in the start tag <a> of the anchor
8 tag. When the printing service request button 32 is
9 selected using the anchor tag, the process can be shifted to
10 the printing provider computer 2, as the linking
11 destination, together with the necessary information, so
12 that the printing service can thereafter be smoothly
13 performed. In order for the printing service to be provided
14 for the client, the vender need only insert a sentence into
15 the HTML document on the web page. Since the printing
16 service provider (printing provider) offers a service that
17 requires the vendor to assume only a small load, for the
18 preparation of the pages used to request the use of the
19 printing service, and since the dimensions of a button on
20 the web page are such that it occupies only a limited area,
21 the printing service will tend to be more frequently
22 employed.

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23 When the client selects the printing service request button
24 32 (step 14), an HTTP request (in the above example, a
25 request for the execution of the TransOrder.cgi program of
26 absolute path //printing provider computer.co.jp/cgi-bin/)
27 is issued to the printing provider computer 2 at the linking
28 destination. That is, since the service provider computer 2

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1 information, such as the client's name and address, is
2 transmitted to the printing provider computer 2 (step 19).
3 When hidden tags are attached, information concerning the
4 target data, such as a title and a recording location, is
5 received with the client information. The printing provider
6 computer 2 then accepts the application (step 20), and
7 transmits application complete display data to the client
8 computer 6 as an application complete notification, which
9 the client computer 6 thereafter displays (step 21). Fig. 7
10 is a diagram showing an example application complete screen
11 7d. It should be noted that the processes at steps 19 and
12 20 are performed by the application acceptance function 2c.

13 When the printing provider computer 2 transmits the
14 application complete display data, it also acquires the
15 print file 5 (step 22). During this process, the title name
16 and the recording location (the file name represented in the
17 absolute path) of the target file to be printed is
18 transmitted by the application acceptance function 2c to the
19 print file acquisition function 2d, which then refers to the
20 recording location to obtain the print file 5 (step 23).
21 According to the example anchor tag, electronic data having
22 the file name "print file.pdf", which is recorded in
23 "//vendor computer.co.jp/", is downloaded.

24 The obtained print file 5 is transmitted to the printer 3
25 (step 24), and is printed (step 25). Since a POD printer is
26 employed in this explanation, the print file 5 is
27 transmitted to the printer 3. However, were another method,
28 such as offset printing, to be employed, a different,

1 appropriate printing process would be performed.

2 The printed material obtained through the printing process
3 is then delivered (step 26). During the delivery process,
4 the printed material is forwarded to the address that is
5 included in the client information obtained for the client
6 who issued the order. Then, after the printed material has
7 been received by the client (step 27), the processing
8 sequence is terminated.

9 According to the printing service provision method and
10 system of this invention, a tag for establishing a link with
11 a printing provider computer need only be inserted into the
12 web page of a vendor, so that the vendor, by employing his
13 or her web page, can easily provide a printing service. The
14 vendor need not be assume responsibility for the acceptance
15 of a printing request, the transmission of a delivery
16 destination information notification to a printing applicant
17 (client), or the provision of the latest print data. The
18 vendor need only add an anchor tag to his or her web page,
19 and transmit an updated file to a predetermined directory
20 (recording location). Therefore, the vendor can be relieved
21 of almost all responsibility for the management of a
22 printing service job.

23 Further, since the printing provider employs a standardized
24 input form to uniformly provide printing services, and since
25 the printing provider obtains client information and a print
26 file each time an application is accepted, the printing
27 provider need not assume responsibility for the management

1 of client information and of print files. Therefore, the
2 operation performed by the printing provider can be
3 simplified and management costs can be reduced. In
4 addition, the printing provider can provide for the vendor a
5 service that imposes almost no operational load on the
6 vendor. Furthermore, since the printing service can be
7 provided simply by embedding a printing service request
8 button in a very limited area on the vendor's web page, the
9 vendor can easily offer clients this advantageous service,
10 and can use it to promote sales.

11 The client can simply accept the printing service, without
12 being aware of which printing provider the application has
13 been submitted to. Further, since the operating efficiency
14 of the process has been improved, the client can expect to
15 pay only a low service charge.

16 The present invention has been explained while referring to
17 the embodiment described. However, the invention is not
18 limited to this embodiment, and can be variously modified
19 without departing from the scope of the invention.

20 In the above embodiment, at step 16, the title and the
21 recording location of the print data are included as hidden
22 tags in the input form data, but instead of the title and
23 the recording location of the print data, a session ID can
24 be included as a hidden tag. In this case, print data
25 information, such as the title and the recording location
26 that is transmitted following the selection of the printing
27 service request button 32 at step 14, is recorded in

1 correlation with the session ID. When the information is
2 managed by using the session ID, multiple types of print
3 data can be selected for the same session, and a shopping
4 packet method, for example, can be employed to select print
5 data. It should be noted that in this case, the application
6 relay function 2d in Fig. 2 notifies the application
7 acceptance function 2c of the recording location of the
8 print file that is correlated with the session management
9 ID.

10 Furthermore, in this embodiment, the printing service has
11 been employed as a recording service. The service is not
12 limited to this, and the present invention can also be
13 applied for the service for recording electronic data on a
14 recording medium, such as a CD-ROM or a DVD-ROM.

15 In addition, a PDF file has been used for the electronic
16 data; however, the storage of the data is not limited to
17 this usage, and a specific word processor file can also be
18 used. Moreover, the electronic data is not limited to
19 documents or drawing files, and music or moving picture data
20 can also be employed for the recording service.
21 Furthermore, an adequate accounting means may be provided
22 for the printing provider computer for the collection of
23 service charges.

24 The specific effects obtained by the present invention are
25 as follows. An efficient recording service, such as the
26 printing of electronic data that is read or distributed, can
27 be provided. Further, although only an extremely small load

1 is imposed on a vendor, a recording service, such as
2 printing, can be provided. In addition, a standardized
3 service provision method can be provided for a service
4 provider, such as a printing provider, who provides an
5 information recording service.

6 The present invention can be realized in hardware, software,
7 or a combination of hardware and software. A visualization
8 tool according to the present invention can be realized in a
9 centralized fashion in one computer system, or in a
10 distributed fashion where different elements are spread
11 across several interconnected computer systems. Any kind of
12 computer system - or other apparatus adapted for carrying out
13 the methods and/or functions described herein - is suitable.
14 A typical combination of hardware and software could be a
15 general purpose computer system with a computer program that,
16 when being loaded and executed, controls the computer system
17 such that it carries out the methods described herein. The
18 present invention can also be embedded in a computer program
19 product, which comprises all the features enabling the
20 implementation of the methods described herein, and which -
21 when loaded in a computer system - is able to carry out these
22 methods.

23 Computer program means or computer program in the present
24 context include any expression, in any language, code or
25 notation, of a set of instructions intended to cause a system
26 having an information processing capability to perform a
27 particular function either directly or after either or both
28 of the following conversion to another language, code or

1 notation, and/or reproduction in a different material form.

2 Thus the invention includes an article of manufacture which
 3 comprises a computer usable medium having computer readable
 4 program code means embodied therein for causing a function
 5 described above. The computer readable program code means
 6 in the article of manufacture comprises computer readable
 7 program code means for causing a computer to effect the
 8 steps of a method of this invention. Similarly, the present
 9 invention may be implemented as a computer program product
 10 comprising a computer usable medium having computer readable
 11 program code means embodied therein for causing a a function
 12 described above. The computer readable program code means
 13 in the computer program product comprising computer readable
 14 program code means for causing a computer to effect one or
 15 more functions of this invention. Furthermore, the present
 16 invention may be implemented as a program storage device
 17 readable by machine, tangibly embodying a program of
 18 instructions executable by the machine to perform method
 19 steps for causing one or more functions of this invention.

20 It is noted that the foregoing has outlined some of the
 21 more pertinent objects and embodiments of the present
 22 invention. This invention may be used for many
 23 applications. Thus, although the description is made for
 24 particular arrangements and methods, the intent and concept
 25 of the invention is suitable and applicable to other
 26 arrangements and applications. It will be clear to those
 27 skilled in the art that modifications to the disclosed
 28 embodiments can be effected without departing from the
 29 spirit and scope of the invention. The described

1 embodiments ought to be construed to be merely illustrative
2 of some of the more prominent features and applications of
3 the invention. Other beneficial results can be realized by
4 applying the disclosed invention in a different manner or
5 modifying the invention in ways known to those familiar with
6 the art.

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